

Chuck Divine
Inwood Office Furniture Co., Inc.
P.O. Box 646
Jasper, Indiana 47547-0646

Re: 037-12168
Significant Source Modification to:
Part 70 permit No.: T037-6048-00012

Dear Mr. Divine:

Inwood Office Furniture Co., Inc. was issued Part 70 operating permit T037-6048-00012 on December 21, 1998 for a wood furniture manufacturing plant. An application to modify the source was received on April 12, 2000. Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

(a) Second coating line consisting of:

- (1) One (1) SAP/NGR Booth, identified as 21/22, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filter and exhausting externally through stacks 2A and 2B.
- (2) One (1) wash Coat Booth, identified as 23, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filter and exhausting externally through stack 2C.
- (3) One (1) Stain Booth, identified as 25, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filters and exhausting externally through stack 2D.
- (4) One (1) Sealer Booth, identified as 27, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filters and exhausting externally through stack 2F.
- (5) One (1) First Topcoat Booth with one (1) flash tunnel, identified as 29, with a maximum rated capacity of 30 units per hour. Particulate emissions from the First Topcoat Booth are controlled by dry-filters and exhausting externally through stack 2H. The flash tunnel exhausts externally through stack 2I.
- (6) One (1) Second Topcoat Booth with one (1) flash tunnel, identified as 30, with a maximum rated capacity of 30 units per hour. Particulate emissions from the Second Topcoat Booth are controlled by dry-filters and exhausting externally through stack 2J. The flash tunnel exhausts externally through stack 2K.
- (7) Two (2) Drying Ovens identified as 26 and 31, with a maximum rated capacity of 1.0 million Btu per hour each, and exhausting externally through stacks 2E and 2L.
- (8) One (1) Drying Oven identified as 28, with a maximum rated capacity of 4.0 million Btu per hour, and exhausting externally through stacks 2G-1, 2G-2, and

2G-3.

- (b) One (1) Final Touch-up Sanding Booth identified as 32, with a maximum rated capacity of 7.5 tons of wood per hour, particulate emissions controlled by cartridge-filters and exhausting internally.
- (c) The following insignificant activities:
 - (1) One (1) Air Makeup Unit utilized for general building ventilation, with a maximum rated heat input capacity of 2.10 million Btu per hour, and exhausting internally.
 - (2) Seven (7) Air Makeup Units, two (2) integrated with the SAP/NGR Booth and one (1) integrated with each of the other five (5) surface coating booths, with a maximum rated capacity of 1.5 million Btu per hour per unit, and exhausting internally into the booth.

The following construction conditions are applicable to the proposed project:

- 1. General Construction Conditions
The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Management (OAM).
- 2. This approval to construct does not relieve the Permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.
- 3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.
- 4. Pursuant to 326 IAC 2-1.1-9 and 326 IAC 2-7-10.5(i), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
- 5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.
- 6. Pursuant to 326 IAC 2-7-10.5(l) the emission units constructed under this approval shall not be placed into operation prior to revision of the source's Part 70 Operating Permit to incorporate the required operation conditions.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter call (800) 451-6027, press 0 and ask for David Howard or extension (2-8422), or dial (317) 232-8422.

Sincerely,

Paul Dubenetzky, Chief
Permits Branch
Office of Air Management

Attachments

DWH

cc: File - Dubois County
U.S. EPA, Region V
Dubois County Health Department
SWRO
Air Compliance Section Inspector Gene Kelso
Compliance Data Section - Karen Nowak
Administrative and Development - Janet Mobley
Technical Support and Modeling - Michele Boner

D.2 FACILITY OPERATION CONDITIONS - Surface Coating Booths

Facility Description [326 IAC 2-7-5(15)]

(a) The first line consisting of the following units:

Twelve (12) surface coating booths, identified as units 01- 012 with dry filters for control. Unit 01 exhausts to stack A; Unit 02 exhausts to stack B; Unit 03 exhausts to stack c; Unit 04 exhausts to stack D; Unit 05 exhausts to stack E; Unit 06 exhausts to stack F; Unit 07 exhausts to stack G; Unit 08 exhausts to stack H; Unit 09 exhausts to stack I; Unit 010 exhausts to stack j; Unit 011 exhausts to stack K; Unit 012 exhausts to stack L;

(b) The second line consisting of the following units:

- (1) One (1) SAP/NGR Booth, identified as 21/22, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filter and exhausting externally through stacks 2A and 2B.
- (2) One (1) wash Coat Booth, identified as 23, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filter and exhausting externally through stack 2C.
- (3) One (1) Stain Booth, identified as 25, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filters and exhausting externally through stack 2D.
- (4) One (1) Sealer Booth, identified as 27, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filters and exhausting externally through stack 2F.
- (5) One (1) First Topcoat Booth with one (1) flash tunnel, identified as 29, with a maximum rated capacity of 30 units per hour. Particulate emissions from the First Topcoat Booth are controlled by dry-filters and exhausting externally through stack 2H. The flash tunnel exhausts externally through stack 2I.
- (6) One (1) Second Topcoat Booth with one (1) flash tunnel, identified as 30, with a maximum rated capacity of 30 units per hour. Particulate emissions from the Second Topcoat Booth are controlled by dry-filters and exhausting externally through stack 2J. The flash tunnel exhausts externally through stack 2K.
- (7) Two (2) Drying Ovens identified as 26 and 31, with a maximum rated capacity of 1.0 million Btu per hour each, and exhausting externally through stacks 2E and 2L.
- (8) One (1) Drying Oven identified as 28, with a maximum rated capacity of 4.0 million Btu per hour, and exhausting externally through stacks 2G-1, 2G-2, and 2G-3.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 General Provisions Relating to HAPs [326 IAC 20-1-1][40 CFR 63, Subpart A]

The provisions of 40 CFR 63, Subpart A - General Provisions, which are incorporated as 326 IAC 20-1-1, apply to the facility described in this section except when otherwise specified in 40 CFR 63, Subpart JJ.

D.2.2 PSD Minor Limit [326 IAC 2-2][40 CFR 63, Subpart A]

The source shall use less than 250 tons of VOC, including coatings, dilution solvents, and cleaning solvents per year. This usage limit is required to limit the potential to emit of VOC to less than 250 tons per twelve (12) consecutive month period. Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.

D.2.3 Nonattainment Particulate Matter Emission Limitations [326 IAC 6-1-2]

Pursuant to 326 IAC 6-1-2, particulate matter emissions from both the first and second surface coating line shall not exceed 0.03 grains per dry standard cubic foot.

D.2.4 Volatile Organic Compounds (VOC) [326 IAC 8-2-12]

Pursuant to 326 IAC 8-2-12 (Wood Furniture and Cabinet Coating), with the exception of no more than ten (10) gallons of coating per day used for touch-up and repair operations, the surface coating applied to wood furniture shall utilize one of the following application methods:

- Airless Spray Application
- Air Assisted Airless Spray Application
- Electrostatic Spray Application
- Electrostatic Bell or Disc Application
- Heated Airless Spray Application
- Roller Coating
- Brush or Wipe Application
- Dip-and Drain Application

High Volume Low Pressure (HVLP) Spray Application is an accepted alternative method of application for Air Assisted Airless Spray Application. HVLP spray is the technology used to apply coating to substrate by means of coating application equipment which operates between one-tenth (0.1) and ten (10) pound per square inch gauge (psig) air pressure measured dynamically at the center of the air cap and at the air horns of the spray system.

D.2.5 Wood Furniture NESHAP [40 CFR 63, Subpart JJ]

- (a) The wood furniture coating operation is subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP), 326 IAC 20-14, (40 CFR 63, Subpart JJ), with a compliance date of December 7, 1998.
- (b) Pursuant to 40 CFR 63, Subpart JJ, the wood furniture coating operations shall comply with the following conditions:
 - (1) Limit the volatile hazardous air pollutant (VHAP) emissions from finishing operations as follows:
 - (A) Achieve a weighted average VHAP content across all coatings of 1.0 pound VHAP per pound solids; or
 - (B) Use compliant finishing materials in which all stains, washcoats, sealers, topcoats, basecoats and enamels have a maximum VHAP content of 1.0 pound VHAP per pound solid, as applied. Thinners used for on-site formulation of washcoats, basecoats, and enamels have a 3.0 percent maximum VHAP content by weight. All other thinners have a 10.0 percent maximum VHAP content by weight; or
 - (C) Use a control device to limit emissions; or
 - (D) Use a combination of (A), (B), and (C).

- (2) Limit VHAP emissions contact adhesives as follows:
 - (A) For foam adhesives used in products that meet the upholstered seating flammability requirements, the VHAP content shall not exceed 1.8 pounds VHAP per pound solids.
 - (B) For all other contact adhesives (except aerosols and contact adhesives applied to nonporous substrates) the VHAP content shall not exceed 1.0 pound VHAP per pound solid.
 - (C) Use a control device to limit emissions.
- (3) The strippable spray booth material shall have a maximum VOC content of 0.8 pounds VOC per pound solids.

D.2.6 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its control device.

D.2.7 Work Practice Standards [40 CFR 63.803]

The owner or operator of an affected source subject to this subpart shall prepare and maintain a written work practice implementation plan within sixty (60) calendar days after the compliance date. The work practice implementation plan must define environmentally desirable work practices for each wood furniture manufacturing operation and at a minimum address each of the following work practice standards as defined under 40 CFR 63.803:

- (a) Operator training course.
- (b) Leak inspection and maintenance plan.
- (c) Cleaning and washoff solvent accounting system.
- (d) Chemical composition of cleaning and washoff solvents.
- (e) Spray booth cleaning.
- (f) Storage requirements.
- (g) Conventional air spray guns shall only be used under the circumstances defined under 40 CFR 63.803(h).
- (h) Line Cleaning.
- (i) Gun Cleaning.
- (j) Washoff operations.
- (k) Formulation assessment plan for finishing operations.

Compliance Determination Requirements

D.2.8 Testing Requirements [326 IAC 2-7-6(1),(6)] [40 CFR 63, Subpart JJ]

- (a) Pursuant to 40 CFR 63, subpart JJ, if the Permittee elects to demonstrate compliance using 63.804(a)(3) or 63.804(c)(2) or 63.804(d)(3) or 63.804(e)(2), performance testing must be conducted in accordance with 40 CFR 63, subpart JJ and 326 IAC 3-6.
- (b) IDEM may require compliance testing at any specific time when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the limits specified in Conditions D.2.2, D.2.3 and D.2.5 shall be determined by performance tests conducted in accordance with Section C - Performance Testing.

D.2.9 Volatile Organic Compounds (VOC)

Compliance with VOC content limitations contained in Condition D.2.5 shall be determined pursuant to 326 IAC 8-1-4(a) and 326 IAC 8-1-2(a), using formulation data supplied by the coating manufacturer. The OAM reserves the authority to determine compliance using Method

24 in conjunction with the analytical procedure specified in 326 IAC 8-1-4.

D.2.10 VOC Emissions

Compliance with Condition D.2.2 shall be demonstrated within 30 days of the end of each month based on the total volatile organic compound usage for the most recent twelve (12) consecutive month period

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.2.11 Particulate Matter (PM)

The dry filters for PM overspray control shall be in operation at all times when the twelve (12) surface coating booths are in operation.

D.2.12 Monitoring

- (a) Daily inspections shall be performed to verify the placement, integrity and particle loading of the filters. To monitor the performance of the dry filters, weekly observations shall be made of the overspray from the surface coating booth stacks while one or more of the booths are in operation. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.
- (b) Monthly inspections shall be performed of the coating emissions from the stack and the presence of overspray on the rooftops and the nearby ground. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when a noticeable change in overspray emission, or evidence of overspray emission is observed. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.
- (c) Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.2.13 Record Keeping Requirements

- (a) To document compliance with Condition D.2.2 the Permittee shall maintain records in accordance with (1) through (5) below. Records maintained for (1) through (5) shall be complete and sufficient to establish compliance with the VHAP usage limits established in Condition D.2.2.
 - (1) The amount and VOC content of each coating material and solvent used. Records shall include purchases orders, invoices and material safety data sheets (MSDS) necessary to verify the type and amount used. Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents;
 - (2) A log of the dates of use;
 - (3) The cleanup solvent usage for each month;
 - (4) The total VOC usage for each month;

- (5) The weight of VOC's emitted for each compliance period.
- (b) To document compliance with Condition D.2.5 the Permittee shall maintain records in accordance with (1) through (5) below. Records maintained for (1) through (5) shall be complete and sufficient to establish compliance with the VHAP usage limits established in Condition D.2.5.
 - (1) Certified Product Data Sheet for each finishing material, thinner, contact adhesive and strippable booth coating.
 - (2) The VHAP content in pounds of VHAP per pounds of solids, as applied, for all finishing materials and contact adhesives used.
 - (3) The VOC content in pounds of VOC per pounds of solids, as applied, for each strippable coating used.
 - (4) The VHAP content in weight percent of each thinner used.
 - (5) When the averaging compliance method is used, copies of the averaging calculations for each month as well as the data on the quantity of coating and thinners used to calculate the average.
- (c) To document compliance with Condition D.2.7, the Permittee shall maintain records demonstrating actions have been taken to fulfill the Work Practice Implementation Plan.
- (d) To document compliance with Conditions D.2.11 and D.2.12, the Permittee shall maintain a log of weekly overspray observations, daily and monthly inspections and those additional inspections prescribed by the Preventive Maintenance Plan.
- (e) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.2.14 Reporting Requirements

- (a) A quarterly summary of the information to document compliance with Condition D.2.2 shall be submitted to the address listed in Section C – General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being used.
- (b) An Initial Compliance Report to document compliance with Condition D.2.5, and the Certification form shall be submitted within sixty (60) calendar days following the compliance date of December 7, 1998. The initial compliance report must include data from the entire month that the compliance data falls.
- (c) A semi-annual Continuous Compliance Report to document compliance with Condition D.2.5, and the Certification form shall be submitted within thirty (30) days after the end of the six (6) months being reported.

The six (6) month periods shall cover the following months:

- (1) January 1 through June 30.
- (2) July 1 through December 31.
- (d) The reports required in (a) and (b) of this condition shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

and

United States Environmental Protection Agency, Region V
Air and Radiation Division, Air Enforcement Branch - Indiana (AE-17J)
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

D.3 FACILITY OPERATION CONDITIONS - Boiler, Drying Oven and Air Makeup Units

Facility Description [326 IAC 2-7-5(15)]

One (1) natural gas boiler 013, with a maximum rating of 2.6 million Btu per hour. Emissions shall be exhausted at stack M.

One (1) Air Makeup Unit utilized for general building ventilation, identified 33, with a maximum rated capacity of 2.10 million Btu per hour, and exhausting externally.

Seven (7) Air Makeup Units, two (2) integrated with the SAP/NGR Booth and One (1) integrated with each of the other five (5) surface coating booths, with a maximum rated capacity of 1.5 million Btu per hour per unit, and exhausting internally into the booth.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.3.1 Nonattainment Area Particulate Matter Emission Limitations [326 IAC 6-1-2]

Pursuant to 326 IAC 6-1-2, particulate matter emissions from the natural gas boiler shall not exceed 0.03 grains per dry standard cubic foot.

Compliance Determination Requirements

D.3.2 Testing Requirements [326 IAC 2-7-6(1), (6)]

The Permittee is not required to test this facility by this permit. However, IDEM may require testing at any specific time when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the PM limit specified in Condition D.3.1 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

D.4 FACILITY OPERATION CONDITIONS – Final Touchup Sanding Operation

Facility Description [326 IAC 2-7-5(15)]

One (1) Final Touchup Sanding Booth, identified as 32, with a maximum rated capacity of 7.5 tons of wood per hour, particulate emissions controlled by cartridge-filters and exhausting internally.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.4.1 Nonattainment Area Particulate Matter Emission Limitations [326 IAC 6-1-2]

Pursuant to 326 IAC 6-1-2, particulate matter emission limitations from the final touchup sanding booth operation shall not exceed 0.03 grains per dry standard cubic foot.

D.4.2 Opacity

The opacity from the sanding operation shall not exceed 40% when vented to the atmosphere.

D.4.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and any control devices.

Compliance Determination Requirements

D.4.4 Testing Requirements [326 IAC 2-7-6(1), (6)]

The Permittee is not required to test this facility by this permit. However, IDEM may require testing at any specific time when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the PM limit specified in Condition D.1.1 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

D.4.5 Particulate Matter (PM)

The cartridge filter for PM control shall be in operation at all times when the final touchup sanding booth is in operation.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.4.6 Visible Emissions Notations

- (a) Daily visible emission notations of the cartridge filter stack exhaust shall be performed during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
- (b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
- (c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
- (d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
- (e) The Compliance Response Plan for this unit shall contain troubleshooting contingency

and response steps for when an abnormal emission is observed.

D.4.7 Parametric Monitoring

The Permittee shall record the total static pressure drop across the cartridge filters used in conjunction with the final touchup sanding operation, at least once weekly when the final touchup sanding operation is in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the cartridge filters shall be maintained within the range of 2.0 to 8.0 inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAM and shall be calibrated at least once every six (6) months.

D.4.8 Cartridge Filter Inspections

An inspection shall be performed each calendar quarter of all cartridge filters controlling the final touchup sanding operation when venting to the atmosphere. A cartridge filter inspection shall be performed within three months of redirecting vents to the atmosphere and every three months thereafter. Inspections are optional when venting indoors. All defective cartridge filters shall be replaced.

D.4.9 Broken Cartridge Filter or Failure Detection

In the event that bag failure has been observed:

- (a) The affected compartments will be shut down immediately until the failed units have been repaired or replaced. Within eight (8) hours of the determination of failure, response steps according to the timetable described in the Compliance Response Plan shall be initiated. For any failure with corresponding response steps and timetable not described in the Compliance Response Plan, response steps shall be devised within eight (8) hours of discovery of the failure and shall include a timetable for completion. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).
- (b) For single compartment cartridge filters, failed units and the associated process will be shut down immediately until the failed units have been repaired or replaced. Operations may continue only if the event qualifies as an emergency and the Permittee satisfies the requirements of the emergency provisions of this permit (Section B - Emergency Provisions).

Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.4.10 Record Keeping Requirements

- (a) To document compliance with Condition D.4.6, the Permittee shall maintain records of daily visible emission notations of the final touchup sanding stack exhaust when venting to the atmosphere.
- (b) To document compliance with Condition D.4.8, the Permittee shall maintain records of the results of the inspections required under Condition D.4.8 and the dates the vents are redirected when venting to the atmosphere.
- (c) To document compliance with Condition D.4.7, the Permittee shall maintain the following:
 - (1) Daily records of the following operational parameters during normal operation when venting to the atmosphere:

- (A) Inlet and outlet differential static pressure; and
 - (B) Cleaning cycle: frequency and differential pressure
- (d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

Indiana Department of Environmental Management Office of Air Management

Addendum to the Technical Support Document for New Construction and Operation

Source Name:	Inwood Office Furniture Co., Inc.
Source Location:	1108 East 15 th Street, Jasper, Indiana 47546
County:	Dubois
SIC Code:	2521
Operation Permit No.:	T037-6048-00012
Operation Permit Issuance Date:	December 21, 1998
Significant Source Modification No.:	037-12168-00012
Permit Reviewer:	David Howard

On August 2, 2000, the Office of Air Management (OAM) had a notice published in The Herald, Jasper, Indiana, stating that Inwood Office Furniture Company, Inc. had applied for a construction permit to install and operate a second surface coating line with control to their existing plant. The notice also stated that OAM proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On August 25, 2000, Inwood Office Furniture Company, Inc. submitted comments on the proposed construction permit. The summary of the comments and corresponding responses is as follows:

Comment 1 The cover letter included with the modification did not include descriptions for the 2.1 MMBtu per hour Air Makeup unit for general ventilation or the seven (7) 1.5 MMBtu per hour Air Makeup units associated with the surface coating booths. We request that these items be added to the cover letter.

Response 1 The following changes have been made to the cover letter (changes are bolded and crossed out for emphasis):

(c) The following insignificant activities:

- (1) One (1) Air Makeup Unit utilized for general building ventilation, with a maximum rated heat input capacity of 2.10 million Btu per hour, and exhausting internally.**
- (2) Seven (7) Air Makeup Units, two (2) integrated with the SAP/NGR Booth and one (1) integrated with each of the other five (5) surface coating booths, with a maximum rated capacity of 1.5 million Btu per hour per unit, and exhausting internally into the booth.**

Comment 2 The pressure drop range indicated at Condition D.4.7 for the cartridge filter that controls the Final Touchup Sanding Booth is 3 to 6 inches of water. Although the exhaust from the filter is intended to only be internally vented and we therefore do not expect that monitoring pressure drop will be necessary, we do not believe that 3 to 6 inches is a correct range.

Response 2 Upon further review of the pressure drop from the Final Touchup Sanding Booth cartridge filter, OAM acknowledges a pressure drop range of 2 to 8 inches of water to be a satisfactory pressure drop. Condition D.4.7 of the significant source modification will be changed as follows (changes are bolded and crossed out for emphasis):

D.4.7 Parametric Monitoring

The Permittee shall record the total static pressure drop across the cartridge filters used in conjunction with the final touchup sanding operation, at least once weekly when the final touchup sanding operation is in operation when venting to the atmosphere. Unless operated under conditions for which the Compliance Response Plan specifies otherwise, the pressure drop across the cartridge filters shall be maintained within the range of ~~3.0 to 6.0~~ **2.0 to 8.0** inches of water or a range established during the latest stack test. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when the pressure reading is outside of the above mentioned range for any one reading.

The instrument used for determining the pressure shall comply with Section C - Pressure Gauge Specifications, of this permit, shall be subject to approval by IDEM, OAM and shall be calibrated at least once every six (6) months.

Indiana Department of Environmental Management Office of Air Management

Technical Support Document (TSD) for a Part 70 Significant Source Modification.

Source Background and Description

Source Name:	Inwood Office Furniture Co., Inc.
Source Location:	1108 East 15 th Street, Jasper, Indiana 47546
County:	Dubois
SIC Code:	2521
Operation Permit No.:	T037-6048-00012
Operation Permit Issuance Date:	December 21, 1998
Significant Source Modification No.:	037-12168-00012
Permit Reviewer:	David Howard

The Office of Air Management (OAM) has reviewed the source modification application from Inwood Office Furniture Co., Inc. relating to the operation of a wood furniture manufacturing plant.

(a) Second coating line consisting of:

- (1) One (1) SAP/NGR Booth, identified as 21/22, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filter and exhausting externally through stacks 2A and 2B.
- (2) One (1) wash Coat Booth, identified as 23, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filter and exhausting externally through stack 2C.
- (3) One (1) Stain Booth, identified as 25, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filters and exhausting externally through stack 2D.
- (4) One (1) Sealer Booth, identified as 27, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filters and exhausting externally through stack 2F.
- (5) One (1) First Topcoat Booth with one (1) flash tunnel, identified as 29, with a maximum rated capacity of 30 units per hour. Particulate emissions from the First Topcoat Booth are controlled by dry-filters and exhausting externally through stack 2H. The flash tunnel exhausts externally through stack 2I.
- (6) One (1) Second Topcoat Booth with one (1) flash tunnel, identified as 30, with a maximum rated capacity of 30 units per hour. Particulate emissions from the Second Topcoat Booth are controlled by dry-filters and exhausting externally through stack 2J. The flash tunnel exhausts externally through stack 2K.
- (7) Two (2) Drying Ovens identified as 26 and 31, with a maximum rated capacity of 1.0 million Btu per hour each, and exhausting externally through stacks 2E and 2L.

- (8) One (1) Drying Oven identified as 28, with a maximum rated capacity of 4.0 million Btu per hour, and exhausting externally through stacks 2G-1, 2G-2, and 2G-3.
- (b) One (1) Final Touch-up Sanding Booth identified as 32, with a maximum rated capacity of 7.5 tons of wood per hour, particulate emissions controlled by cartridge-filters and exhausting internally.

Insignificant Activities

The source also consists of the following insignificant activities as defined by 326 IAC 2-7-1(21).

- (1) One (1) Air Makeup Unit utilized for general building ventilation, identified 33, with a maximum rated capacity of 2.10 million Btu per hour, and exhausting externally.
- (2) Seven (7) Air Makeup Units, two (2) integrated with the SAP/NGR Booth and one (1) integrated with each of the other five (5) surface coating booths, with a maximum rated capacity of 1.5 million Btu per hour per unit, and exhausting internally into the booth.

History

On April 12, 2000, Inwood Office Furniture Co., Inc. submitted an application to the OAM requesting to install a second surface coating line to their existing plant. Inwood Office Furniture Co., Inc. was issued a Part 70 permit on December 21, 1998, and a significant permit modification, to obtain a PSD synthetic minor limit, was issued on June 29, 1999.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
2A	SAP	29.33	2.33	32,000	Ambient
2B	NGR	29.33	2.33	(included above)	Ambient
2C	Wash Coat	29.33	2.33	14,000	Ambient
2D	Stain	29.33	2.33	14,000	Ambient
2E	Stain Drying Oven	29.33	1.33	3,000	120
2F	Sealer	29.33	2.33	14,000	Ambient
2G-1	Combo Oven	29.33	1.33	3,000	120
2G-2	Combo Oven	29.33	1.33	3,000	120
2G-3	Combo Oven	29.33	1.33	3,000	120
2H	1 st Topcoat	29.33	2.33	16,000	Ambient
2I	1 st Topcoat Flash	29.33	2.33	16,000	Ambient
2J	2 nd Topcoat	29.33	2.33	14,000	Ambient
2K	2 nd Topcoat Flash	29.33	2.33	16,000	Ambient
2L	Topcoat Oven	29.33	2.33	3,000	120

Recommendation

The staff recommends to the Commissioner that the Part 70 Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on April 12, 2000. Additional information was received on May 23, 2000.

Emission Calculations

See Appendix A of this document for detailed Natural Gas Combustion (pages one (1) through eight (8)).

The Surface Coating Application calculations submitted by the applicant have been reviewed and verified to be correct, the calculations are located in Appendix A page nine (9).

Potential to Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA."

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential To Emit (tons/year)
PM	76.76
PM-10	76.76
SO ₂	0.02
VOC	1,507.16
CO	6.83
NO _x	8.17

HAP's	Potential To Emit (tons/year)
Toluene	442.31
Methyl ethyl ketone	198.41
Formaldehyde	0.27
MIBK	28.05
Xylene	77.04
EG monobutyl ether	33.45
Total	779.53

Justification for Modification

The Part 70 Operating permit is being modified through a Part 70 Significant Source Modification

because the potential to emit of PM/PM10 is greater than 25 tons per year, even though the surface coating operation is the same as the previous permitted surface coating line. This significant source modification is being performed pursuant to 326 IAC 2-7-10.5(f).

County Attainment Status

The source is located in Dubois County.

Pollutant	Status
PM-10	Attainment
SO ₂	Attainment
NO ₂	Attainment
Ozone	Attainment
CO	Attainment
Lead	Attainment

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NO_x) are precursors for the formation of ozone. Therefore, VOC and NO_x emissions are considered when evaluating the rule applicability relating to the ozone standards. Dubois County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NO_x emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Dubois County has been classified as attainment or unclassifiable for CO, PM₁₀, SO₂ and Lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (c) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, the fugitive PM emissions are not counted toward determination of PSD and Emission Offset applicability.

Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	22.22
PM-10	--
SO ₂	--
VOC	Limited to less than 250
CO	--
NO _x	--

- (a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories. The source took a limit of less than 250 tons per year of VOC, a PSD minor limit condition, in a previous permit modification.

Potential to Emit of Modification after Issuance

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

Process/facility	Potential to Emit (tons/year)						
	PM	PM-10	SO ₂	VOC	CO	NO _x	HAPs
Surface Coating Booths (existing and new lines)	8.47	8.47	--	*Less than 250	--	--	Single: less than 10 Combined: less than 25
Sanding Booth	33.8	33.8	--	--	--	--	--
Natural Gas Combustion	0.62	0.62	0.02	0.45	6.83	8.17	--

*Source wide limit – the new line will be included under the same synthetic minor limit of less than 250 tons per year of VOC. Therefore the source will maintain minor status after the installation of the second coating line.

This modification to an existing minor stationary source is not major because the emission increase is less than the PSD significant levels, due to a federally enforceable PSD minor limit. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

Federal Rule Applicability

The original surface coating line is subject to the requirements of 40 CFR 63, Subpart JJ (NESHAP for Wood Furniture Manufacturing Operations). The proposed second surface coating line will also be subject to the requirements of Subpart JJ.

State Rule Applicability – Surface Coating Booths

PSD Minor Limit [326 IAC 2-2][40 CFR 52.21]

The source has a current PSD minor limit of less than 250 tons per year; the proposed modification shall be limited under the same 250 tons per year PSD minor limit. The entire source shall use less than 250 tons of VOC, including coatings, dilution solvents, and cleaning solvents per year. This usage limit is required to limit the potential to emit of VOC to less than 250 tons per twelve (12) consecutive month period. Compliance with this limit makes 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.

Opacity Emissions Limitations [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following when venting to the atmosphere, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of thirty percent (30%) opacity in twentyfour (24) hour consecutive reading as determined in 326 IAC 5-1-4.
- (a) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) in a six (6) hour period.

Non-attainment Area Particulate Limitations [326 IAC 6-1-2]

326 IAC 6-1-2 limits particulate matter emissions for sources located in non-attainment areas for particulates. The cartridge filters which control the Final Touch-up Sanding Booth, dry filters which control particulate emissions from the coating booths, and the drying ovens and air makeup units are subject to the 0.03 grains per dry standard cubic foot limit.

Volatile Organic Compounds [326 IAC 8-2-12]

Pursuant to 326 IAC 8-2-12 (Wood Furniture and Cabinet Coating), facilities that emit more than 15 pounds per day of VOCs and that manufacture wood furniture are subject to the requirements of this rule. Therefore, the requirements of 326 IAC 8-2-12 shall apply to the proposed second surface coating line. The surface coating applied to wood furniture in the surface application process shall utilize one of the following application methods:

- Airless Spray Application
- Air Assisted Airless Spray Application
- Electrostatic Spray Application
- Electrostatic Bell of Disc Application
- Heated Airless Spray Application
- Roller Coating
- Brush of Wipe Application
- Dip and Drain Application

High Volume Low Pressure (HVLP) Spray Application is an accepted alternative method of application for Air Assisted Airless Spray Application. HVLP spray is the technology used to apply coating to substrate by means of coating application equipment which operates between one tenth (0.1) and ten (10) pound per square inch gauge (psig) air pressure measured dynamically at the center of the air cap and at the air horns of the spray system.

Compliance Requirements

The Permittee shall maintain records in accordance with (1) through (5) below. The Records maintained for (1) through (5) shall be taken monthly and shall be complete and sufficient to establish compliance with the less than 250 tons per twelve (12) consecutive month period VOC usage limit established in the permit.

- (a) The surface coating booths have applicable compliance monitoring conditions as specified below:
 - (1) The amount of VOC content of each coating material and solvent used. Records shall include purchase orders, invoices, and material safety data sheets (MSDS) necessary to verify the type and amount used. Solvent usage records shall differentiate between those added to coatings and those used as cleanup solvents.
 - (2) A log of the dates of use.
 - (3) The cleanup solvent usage for each month.
 - (4) The total VOC usage for each month.
 - (5) The weight of VOC's emitted for each compliance period.
 - (6) Daily inspections shall be performed to verify the placement, integrity and particle loading of the filters. To monitor the performance of the dry filters, daily observations shall be made of the overspray while one or more of the booths are in operation. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response

steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.

- (7) Weekly inspections shall be performed of the coating emissions from the stack and the presence of overspray on the rooftops and the nearby ground. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an overspray emission, evidence of overspray emission, or other abnormal emission is observed. The Compliance Response Plan shall be followed whenever a condition exists which should result in a response step. Failure to take response steps in accordance with Section C - Compliance Monitoring Plan - Failure to Take Response Steps, shall be considered a violation of this permit.
- (8) Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

These monitoring conditions are necessary because the dry filters for the surface coating booths must operate properly to ensure compliance with 326 IAC 6-1-2 (Nonattainment Area Particulate Matter Emission Limitations).

- (b) The woodworking operation has applicable compliance monitoring conditions as specified below:
 - (1) Daily visible emission notations of the woodworking baghouse stack exhaust shall be performed during normal daylight operations when exhausting to the atmosphere. A trained employee shall record whether emissions are normal or abnormal.
 - (2) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.
 - (3) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.
 - (4) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.
 - (5) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.
 - (6) An inspection shall be performed each calendar quarter of all bags controlling the woodworking operation. All defective bags shall be replaced.

These monitoring conditions are necessary to ensure compliance with 326 IAC 6-1-2 (Nonattainment Area Particulate Matter Emission Limitations).

Proposed Changes to the Issued Title V

Changes are bolded and crossed out for emphasis.

- (1) The following units have been added to the A.2:

(c) Second coating line consisting of:

- (1) One (1) SAP/NGR Booth, identified as 21/22, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filter and exhausting externally through stacks 2A and 2B.
 - (2) One (1) wash Coat Booth, identified as 23, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filter and exhausting externally through stack 2C.
 - (3) One (1) Stain Booth, identified as 25, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filters and exhausting externally through stack 2D.
 - (4) One (1) Sealer Booth, identified as 27, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filters and exhausting externally through stack 2F.
 - (5) One (1) First Topcoat Booth with one (1) flash tunnel, identified as 29, with a maximum rated capacity of 30 units per hour. Particulate emissions from the First Topcoat Booth are controlled by dry-filters and exhausting externally through stack 2H. The flash tunnel exhausts externally through stack 2I.
 - (6) One (1) Second Topcoat Booth with one (1) flash tunnel, identified as 30, with a maximum rated capacity of 30 units per hour. Particulate emissions from the Second Topcoat Booth are controlled by dry-filters and exhausting externally through stack 2J. The flash tunnel exhausts externally through stack 2K.
 - (7) Two (2) Drying Ovens identified as 26 and 31, with a maximum rated capacity of 1.0 million Btu per hour each, and exhausting externally through stacks 2E and 2L.
 - (8) One (1) Drying Oven identified as 28, with a maximum rated capacity of 4.0 million Btu per hour, and exhausting externally through stacks 2G-1, 2G-2, and 2G-3.
 - (d) One (1) Final Touch-up Sanding Booth identified as 32, with a maximum rated capacity of 7.5 tons of wood per hour, particulate emissions controlled by cartridge-filters and exhausting internally.
- (2) The following units have been added to A.3:
- One (1) Air Makeup Unit utilized for general building ventilation, identified 33, with a maximum rated capacity of 2.10 million Btu per hour, and exhausting externally.
- Seven (7) Air Makeup Units, two (2) integrated with the SAP/NGR Booth and one (1) integrated with each of the other five (5) surface coating booths, with a maximum rated capacity of 1.5 million Btu per hour per unit, and exhausting internally into the booth.

- (3) Section D.2 is revised to include the second coating line.

Facility Description [326 IAC 2-7-5(15)]

(a) The first line consisting of the following units:

Twelve (12) surface coating booths, identified as units 01- 012 with dry filters for control. Unit 01 exhausts to stack A; Unit 02 exhausts to stack B; Unit 03 exhausts to stack c; Unit 04 exhausts to stack D; Unit 05 exhausts to stack E; Unit 06 exhausts to stack F; Unit 07 exhausts to stack G; Unit 08 exhausts to stack H; Unit 09 exhausts to stack I; Unit 010 exhausts to stack j; Unit 011 exhausts to stack K; Unit 012 exhausts to stack L;

(b) The second line consisting of the following units:

- (1) One (1) SAP/NGR Booth, identified as 21/22, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filter and exhausting externally through stacks 2A and 2B.**
- (2) One (1) wash Coat Booth, identified as 23, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filter and exhausting externally through stack 2C.**
- (3) One (1) Stain Booth, identified as 25, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filters and exhausting externally through stack 2D.**
- (4) One (1) Sealer Booth, identified as 27, with a maximum rated capacity of 30 units per hour, particulate emissions controlled by dry-filters and exhausting externally through stack 2F.**
- (5) One (1) First Topcoat Booth with one (1) flash tunnel, identified as 29, with a maximum rated capacity of 30 units per hour. Particulate emissions from the First Topcoat Booth are controlled by dry-filters and exhausting externally through stack 2H. The flash tunnel exhausts externally through stack 2I.**
- (6) One (1) Second Topcoat Booth with one (1) flash tunnel, identified as 30, with a maximum rated capacity of 30 units per hour. Particulate emissions from the Second Topcoat Booth are controlled by dry-filters and exhausting externally through stack 2J. The flash tunnel exhausts externally through stack 2K.**
- (7) Two (2) Drying Ovens identified as 26 and 31, with a maximum rated capacity of 1.0 million Btu per hour each, and exhausting externally through stacks 2E and 2L.**
- (8) One (1) Drying Oven identified as 28, with a maximum rated capacity of 4.0 million Btu per hour, and exhausting externally through stacks 2G-1, 2G-2, and 2G-3.**

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

- (4) Section D.3 is revised to include the following units:

Facility Description [326 IAC 2-7-5(15)]

One (1) natural gas boiler 013, with a maximum rating of 2.6 million Btu per hour. Emissions shall be exhausted at stack M.

One (1) Air Makeup Unit utilized for general building ventilation, identified 33, with a maximum rated capacity of 2.10 million Btu per hour, and exhausting externally.

Seven (7) Air Makeup Units, two (2) integrated with the SAP/NGR Booth and one (1) integrated with each of the other five (5) surface coating booths, with a maximum rated capacity of 1.5 million Btu per hour per unit, and exhausting internally into the booth.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

- (5) A new section, D.4, has been added

Conclusion

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No. 037-12168-00012.

Appendix A: Emissions Calculations
Natural Gas Combustion Only
Air Makeup Unit (2.10 MMBtu/hr)

Company Name: Inwood Office Furniture Co.
Address City IN Zip: 1108 East 15th St., Jasper, IN 47546
CP: 037-12168-00012
Plt ID: 037-00012
Reviewer: DWH
Date: 4/48/00

Heat Input Capacity
MMBtu/hr

Potential Throughput
MMCF/yr

2.1

18.4

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0	5.5	84.0
Potential Emission in tons/yr	0.02	0.07	0.01	0.92	0.05	0.77

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 2 for HAPs emissions calculations.

HAPs - Organics

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	1.932E-05	1.104E-05	6.899E-04	1.656E-02	3.127E-05

HAPs - Metals

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	4.599E-06	1.012E-05	1.288E-05	3.495E-06	1.932E-05

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

Air Makeup Units (7 at 1.5 MMBtu/hr)Heat Input Capacity
MMBtu/hrPotential Throughput
MMCF/yr

1.5

13.1

Emission Factor in lb/MMCF	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
	1.9	7.6	0.6	100.0	5.5	84.0
Potential Emission in tons/yr	0.01	0.05	0.00	0.66	0.04	0.55

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

See page 4 for HAPs emissions calculations.

HAPs - Organics

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	1.932E-05	1.104E-05	6.899E-04	1.656E-02	3.127E-05

HAPs - Metals

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	4.599E-06	1.012E-05	1.288E-05	3.495E-06	1.932E-05

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.
Additional HAPs emission factors are available in AP-42, Chapter 1.4.

INWOOD OFFICE FURNITURE **SURFACE COATING AND ACCESSORY SOLVENTS (as APPLIED)**

Process or Booth I.D.	Name of Coatings, Solvents, Etc.	Material density (lbs/gal)	Weight % Volatiles (H2O+Org)	Weight % Water	Volume % Water	Volume % Non-volatiles (Solids)	Coating Ratio	Lbs VOC per Gallon as Applied	Lbs Solids per Gallon as Applied	Gallons of Material per Unit	Maximum Units per Hour	Unlimited Tons VOC per Year	Uncontrolled Tons PM per Year	Method	Controlled Tons PM per Year
21/SAP	Crown Cherry Durostain	6.95	96.05%	0	0	1.36	100%	6.68	0.27	0.308	30	270.16	6.11	(1)	1.22
22/NGR	Crown Cherry Durostain	6.95	96.05%	0	0	1.36	100%	6.68	0.27	0.308	30	270.16	6.11	(1)	1.22
23/wash coat	Crown Cherry Durostain	6.95	96.05%	0	0	1.36	100%	6.68	0.27	0.308	30	270.16	6.11	(1)	1.22
24/filler	#1 Walnut Wipe Stain	6.73	86.50%	0	0	7.7	61.54%	6.46	0.56	0.124	30	105.18	0.00	(2)	0.00
	Reducer	7.47	100.00%	0	0	0	38.46%								
25/stain	Crown Cherry Durostain	6.95	96.05%	0	0	1.36	100%	6.68	0.27	0.308	30	270.16	6.11	(1)	1.22
27/sealer	H.S. Catalyst Sealer	7.5	76.81%	0	0	16.63	98.20%	5.80	1.71	0.145	30	110.48	17.90	(1)	3.58
	Retarder	7.86	100.00%	0	0	0	1.80%								
29/topcoat 1	#1 Walnut Wipe Stain	6.73	86.50%	0	0	7.7	61.54%	6.46	0.56	0.124	30	105.18	0.00	(2)	0.00
	Reducer	7.47	100.00%	0	0	0	38.46%								
30/topcoat-2	#1 Walnut Wipe Stain	6.73	86.50%	0	0	7.7	61.54%	6.46	0.56	0.124	30	105.18	0.00	(2)	0.00
	Reducer	7.47	100.00%	0	0	0	38.46%								

	Method #1	Method #2
Transfer Efficiency	45%	100%
Collection Efficiency	90%	NA
Control Efficiency	90%	NA

Totals	1506.69	42.34		8.47
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Weight Percent HAPs								Tons of HAPs per Year					
Process or Booth I.D.	Name of Coatings, Solvents, Etc.	EG monobutyl ether (111-76-2)	Xylene (1330-20-7)	MIBK (108-10-1)	Formaldehyde (50-00-0)	Methyl ethyl ketone (78-93-3)	Toluene (108-88-3)	EG monobutyl ether (111-76-2)	Xylene (1330-20-7)	MIBK (108-10-1)	Formaldehyde (50-00-0)	Methyl ethyl ketone (78-93-3)	Toluene (108-88-3)
21/SAP	Crown Cherry Durostain					18.36%	40.93%					49.60	110.58
22/NGR	Crown Cherry Durostain					18.36%	40.93%					49.60	110.58
23/wash coat	Crown Cherry Durostain					18.36%	40.93%					49.60	110.58
24/filler	#1 Walnut Wipe Stain	10.60%	17.30%					11.15	18.20				
	Reducer												
25/stain	Crown Cherry Durostain					18.36%	40.93%					49.60	110.58
27/sealer	H.S. Catalyst Sealer		20.32%	25.39%	0.24%				22.45	28.05	0.27		
	Retarder												
29/topcoat 1	#1 Walnut Wipe Stain	10.60%	17.30%					11.15	18.20				
	Reducer												
30/topcoat-2	#1 Walnut Wipe Stain	10.60%	17.30%					11.15	18.20				
	Reducer												

Total Single HAPs (tons/yr)	33.45	77.04	28.05	0.27	198.41	442.31
Total Combined HAPs (tons/yr)	779.53					

PTE: VOC Tons per Year = Lbs VOC per Gallon coating (lb/gal) * Gal per Unit (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 ton/2000 lbs)

PTE: PM Tons per Year = Lbs solids per Gallon coating (lb/gal) * Gal per Unit (gal/unit) * Maximum (units/hr) * (1-Transfer efficiency) * (8760 hr/yr) * (1 ton/2000 lbs)

Controlled PTE: PM Tons per Year = PTE Tons per Year * [(1-Collection efficiency) + (1-Control efficiency)]